Chapter 4

DESIGN – THE ART OF WORK

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Design is purposeful and applied art. Designed things, events, and situations serve various purposes while using the vocabularies of art: material, color, texture, movement, rhythm, balance, etc.

"Designing," says Herbert Simon of Carnegie Mellon, "is devising courses of action aimed at changing existing situations into preferred ones." We design or "devise courses of action" in different ways.

According to Howard Gardner's "Multiple Intelligences," we design linguistically when we design a composition or poem; we design musically when we compose music; we design kinesthetically when we choreograph movement for a dance, parade, or football play.

Visual/spatial design is the most recognized form of design. This is the domain of artifacts, which can be as small as jewelry or as large as buildings or cities.

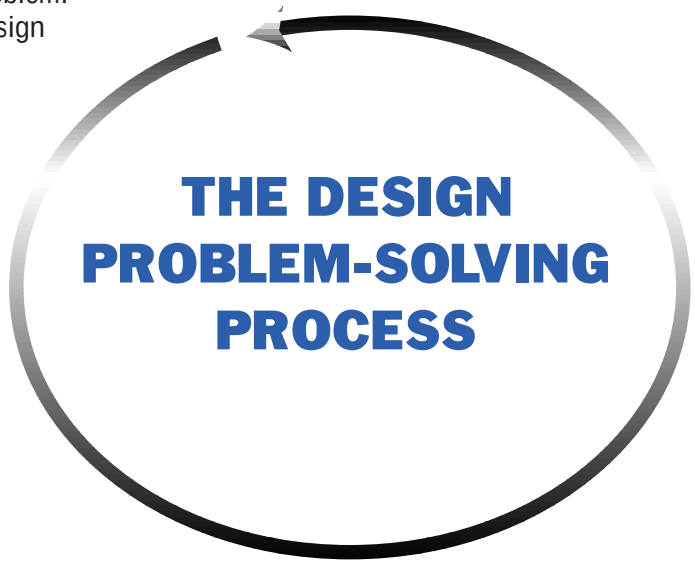
Purists may decry design's "commercial" nature, but this is why design is a significant art form. Its essence is not in museums, but in your home, the city's streets, everywhere. It's the art of the everyday world. It beautifies our environment, and makes it more functional and efficient.

Every person, every moment, everywhere is in the presence of design. Just breathing, we can inhale designed scents of candles, perfume, etc.

Before students begin to design, they need to have a task to accomplish using music, dance, theater, or visual arts. In music, they can compose a march, an advertisement, or birthday party. Ask them in how many ways and for what reasons such compositions differ.

Design infuses meaning and aesthetic sensibility into daily life, making the ordinary extraordinary.

THE DESIGN PROBLEM-SOLVING PROCESS



1. **ANALYZE AND INVESTIGATE:**
   Start with an examination of the task. Examine the need, opportunity, or problem. Whose needs will be served by the design project?

2. **FRAME A DESIGN BRIEF:**
   Prepare a statement describing what the design/redesign should do and what constraints are imposed. This will keep the process on track.

3. **GATHER INFORMATION:**
   Identify the influencing factors. What are the sizes, stresses, appearance, use, safety, ergonomic factors, cost, etc., that must be addressed to achieve a viable solution?

4. **GENERATE ALTERNATIVE SOLUTIONS:**
   In technological problems there are no right or wrong answers—only good or bad solutions. To avoid bad solutions, the designer needs to look at many alternatives. This step calls for flexibility and creativity.

5. **CHOOSE THE SOLUTION:**
   Choose from the alternatives the one solution that best satisfies the demands of the situation and the design brief. The designer should be able to defend the choice.

6. **DEVELOP THE SOLUTION:**
   This step includes technical planning of procedures and resource planning. Develop models, sketches, and plans.

7. **CREATE A PROTOTYPE:**
   Construct the product. Appearance now becomes important to "sell'" the design idea or product.

8. **TEST AND EVALUATE:**
   Test the solution against the requirements in the design brief and against the original task or problem. Address the need for improvements.

9. **REDESIGN AND IMPLEMENT:**
   The evaluated solution may be reworked and retested-especially if the product is to be produced in quantity or put to actual use. The appearance of the product takes on greater importance.

Table 4.1

Aspects of Design

The various aspects of design provide a plethora of ideas for student activities.

DESIGN AWARENESS	DESIGN HISTORY	IDENTIFY PROBLEMS & OPPORTUNITIES	SOLVE PROBLEMS	DESIGN A PRODUCT
Adopt an unsightly site. Measure and develop a plan for re-creating it. What materials would you need? Cost it out.	Trace the history of the camera from inception to today. Report on scientific changes that evolved its design and capabilities.	Use your journal to list annoyances that you repeatedly encounter. Brainstorm solutions.	You need the sound of ocean waves as a sound effect for a play. You aren't near the ocean. List possible solutions and test them out.	Design a piece of jewelry that incorporates a symbol you design to represent an aspect of your character or personality.
Create a catalog of different designs of appliances, chairs, windows, home entries, or other items/products.	Report on social changes that were produced by the automobile. Discuss design changes from its invention.	Write instructions for completing an art-related computer function. Have another student follow the instructions. Do you need to change the instructions?	Create a faux surface, e.g., make one surface appear to be something else: wood, cork, marble...	Create a prototype of a chair or other piece of furniture by manipulating found materials: cardboard, plastic, wood, paper-mache, etc.
Without looking, draw from memory the section of the classroom that is behind you. Then turn around and evaluate your accuracy.	Design a concert of music related to patriotism, U.S. history, or politics.	Someone tells you there is a "red herring" in a movie you saw. What do they mean? How does the red herring function?	Prepare several design ideas for creating an article of clothing from white and/or black trash bags. Generate ideas for accessories from found objects.	Create an article of clothing based on the design project directly to the left of this one. Accessorize. Hold a class fashion show.
Tour your school neighborhood. What would you like to change? How would you go about it?	Describe how the setting, props, fashion, and manners displayed in the play "1776" are different from today. How would a 1940s play be different?	Watch a movie (segment) three times. 1st just watch it. 2nd focus on the photography/special effects. 3rd listen to the sound.	You want to do a painting, but have no brushes. What 10 other things can you use to apply paint? Try them out. Which gave good results? Which didn't? Why?	Design and produce a percussion or strings instrument. Demonstrate by producing rhythmic sounds.

Table 4.2

Design Possibilities from the Environment

Broad themes extend the selection of opportunities for lessons in design.

Videotape or photograph a landmark building. Research its style, history, purpose, and construction materials.	Tape sounds in your environment. Use them in a musical composition. Identify musical pieces that do the same.	Study samples or photos of Ikebana (Japanese flower arranging). Students create their own Ikebana using weeds, wildflowers, etc.	Create a mini-landscape with a variety of natural textures and plants. Include a walkway, stone or wood fence, etc.	Draw a rose (or other flower) from four angles. Combine to create a composition or use a single drawing to create a pattern.	Adapt patterns and textures in nature for use in fabric or clothing design.
Adopt an unsightly site. Measure and develop a plan for re-creating it. What materials would you need. Cost it out.	Design a walking tour of interesting or historic places to see in your town.	Research "Fallingwater" and pool information for a presentation of this Frank Lloyd Wright design.	Collect pictures or models of boats and describe their functions related to the design. Design a boat.	Analyze the design features of English gardens and Japanese gardens.	Collect samples of natural fabrics/fibres. Contrast with synthetic fabric/fibres.
You have to design the interior of a yacht salon. What design problems exist? What kind of materials would you use?	Half of the students design a home for Alaska. The others design a home for Hawaii. What factors determine the design?	As a class project, design and build a prototype of a theater, restaurant, or shopping district for your town.	Visit Northlandz in Flemington, NJ (model trains/villages). Note the style differences in the eras represented.	Create a weaving, woven basket or macrame with reeds, grass, and other natural objects	Discuss the various uses of animal skins/feathers in fashion history. Provide illustrations.
You want to schedule a "play in the park." What elements must be considered to safely schedule this event?	Imagine the view from a window in your home or school is a painting and the window frame is the picture frame. Draw the "painting."	Design an "environment" for a retail store. Present the idea to the "owners." Produce several sketches.	Design a poster or postage stamp in support of preservation of natural resources or endangered species.	Design a stage set prototype of a cabin in a winter setting.	Choreograph a dance based on a weather change.
Visit a corporate park such as the Carnegie Center in Princeton. What purposes are served by the design of the open space?	Watch the movie "The Bear," and discuss its environmental message.	Research color theory and the psychological and physiological effects of color on humans. Include chromotherapy.	Visit "Grounds for Sculpture, " Hamilton, NJ. Report on landscape/stone and wood sculpture design.	Study kite designs and what enables them to fly. Create a kite and test it.	Describe the Bauhaus philosophy of design as it applies to interior environments.

Table 4.1

Aspects of Design

Potential design activities based on the theme "shelter."

List possible meanings of the word *shelter*. List places that might serve as shelter.	Create a replica of a shelter for: insects, birds, animals, people. Describe how the space and construction function.	Examine pictures of homes from various parts of the world. Create a replica. Identify its locale, historical period, design.	Research how technology and social change have influenced the structure of homes in the U.S. since the 1600s.	Preview an architect's blueprint and describe in words the floor plan and features of the house.
Use CAD to design an ideal 21st-century interior. Print and save design.	Divide class into architectural teams. Each student designs an interior for an individual with disabilities, e.g., who is blind, or deaf/hard of hearing.	Construct a foam board or cardboard (tabletop) facade in scale for a home of a specific style, Victorian, Italianate, American Foursquare, etc.	Discuss what makes a home more than a shelter.	Research various styles of furnishings: art deco, French Country, Early American, Modern, etc. Determine the primary characteristics and historical period of each.
Design a home for a different geographic site: near water, in snow country, etc.	Study multiple dwelling designs through ages or cultures.	Videotape a landmark. Research its style, history, construction materials, design.	Learn about modular design and create a living complex using modular construction.	Design a playhouse, store, or room from an appliance carton. Assemble several boxes to create a "complex" of rooms.
Develop a catalog of pictures (cut from magazines, etc.) of various porches, decks, window designs, window treatments, etc.	Design a pattern for a stencil. Use the stencil to create wallpaper, wall strips, curtain pattern, etc.	Research "Fallingwater." Pool the class's information and create a group consensus on this Frank Lloyd Wright design.	Collect pictures/models of yachts/ships. Identify design differences from land shelters.	Describe how technology has changed the shape of skyscrapers. Identify several famous skyscrapers by their shape.
Research the philosophy of Feng Shui.	Compare the interiors of a Japanese style home to an American home.	Create a mini-landscape using a variety of textures, plantings, bridges, a walkway, and a stone or wood fence.	Design furnishings for a boat. What materials can or can't you utilize? Design a houseboat.	Design a shelter for your pet.